AL-TR-91-0037

AD-A235 692

ARMSTRONG LABORATORY

ENVIRONMENTAL SAMPLING SURVEY CIBOLO, TEXAS

Nancy S. Hedgecock, 1Lt, USAF, BSC

OCCUPATIONAL AND ENVIRONMENTAL
HEALTH DIRECTORATE
Brooks Air Force Base, Texas 78235-5000

March 1991

Final Technical Report for Period 21 September 1990

AIR FORCE SYSTEMS COMMAND
BROOKS AIR FORCE BASE, TEXAS 78235-5601

NOTICES

When Government drawings, specifications, or other data are used for any purpose other than a definitely related Government procurement operation, the Government incurs no responsibility or any obligation whatsoever. The fact that the Government may have formulated, or in any way supplied the drawing, specifications, or other data, is not to be regarded by implication, or otherwise, as in any manner licensing the holder or any other person or corporation; or conveying any rights or permission to manufacture, use, or sell any patented invention that may in any way be related thereto.

The mention of trade names or commercial products in this publication is for illustration purposes and does not constitute endorsement or recommendation for use by the United States Air Force.

The Public Affairs Office has reviewed this report, and it is releasable to the National Technical Information Service, where it will be available to the general public, including foreign nations.

This report has been reviewed and is approved for publication.

Air Force installations may direct requests for copies of this report to: Armstrong Laboratory, Occupational and Environmental Health Directorate Library, Brooks AFB TX 78235-5000.

Other Government agencies and their contractors registered with the DTIC should direct requests for copies of this report to: Defense Technical Information Center (DTIC), Cameron Station, Alexandria VA 22304-6145.

Non-Government agencies may purchase copies of this report from: National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield VA 22161

NANCY S. HEDGECOCK, 1Lt, USAF, BSC
Consultant, Environmental Engineer

EDWIN C. BANNER III, Col, USAF, BSC
Chief, Bioenvironmental Engineering Division

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY (Leave blank)	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	March 1991	Final, 21 Sep 90

4. TITLE AND SUBTITLE
Environmental Sampling Survey, Cibolo, Texas

5. FUNDING NUMBERS

6. AUTHOR(S)
Nancy S. Hedgecock, 1Lt, USAF, BSC

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Armstrong Laboratory
Occupational and Environmental Health Directorate
Brooks AFB TX 78235-5501
(Formerly: AF Occupational and Environmental Health Laboratory (AFOEHL))

8. PERFORMING ORGANIZATION REPORT NUMBER
AL-TR-91-0037

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Same as Blk 7

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION/AVAILABILITY STATEMENT
Statement A. Unlimited, approved for public release

12b. DISTRIBUTION CODE

13. ABSTRACT (Maximum 200 words)

At the request of HQ ATC/DEEV, AFOEHL performed an emergency environmental sampling survey at Cibolo TX on 21 Sep 90. The purpose of the survey was to sample, analyze, and determine the appropriate disposition of approximately 60 drums containing unknown materials.

14. SUBJECT TERMS

15. NUMBER OF PAGES
47

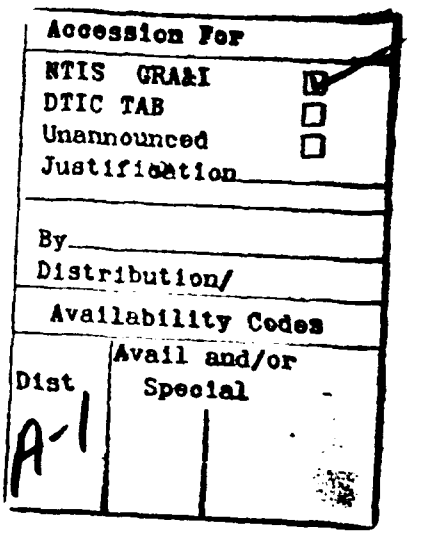
16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UL

(This page left blank)

ACKNOWLEDGMENTS

I would like to thank Capt Pat McMullen and Amn Chris Feagin for their support before and during the survey. Without their dedication and assistance it would have been impossible to perform the survey in such a timely manner.



CONTENTS

I. INTRODUCTION

On 17 Sep 90, HQ ATC/DEV requested that the Air Force Occupational and Environmental Health Laboratory Hazardous Waste Function (AFOEHL/EQH) perform an Environmental Sampling Survey at a site located north of San Antonio on FM 1518 between FM 78 and I-35. The scope of the survey was to sample, analyze, and determine the appropriate disposition of approximately 60 drums containing unknown materials.

The survey was conducted by Capt Patrick McMullen, 1Lt Nancy Hedgecock, and Amn Christopher Feagin on 21 Sep 90. Several drums were resampled on 18 Dec 90.

II. DISCUSSION

A. Background

On 10 Sep 90, the Texas Water Commission (TWC) notified 12 CES/DEV (Mr John Stevens, GS-13) that approximately 60 drums of unidentified waste material in drums with Randolph Air Force Base markings were located in a field on private property. This property is owned by Mr Bergent, who currently lives immediately across the highway from the field at 3112 FM 1518. After inspecting the drums, 13 CES/DEV determined the drums probably did originate at Randolph AFB. According to the landowner, he was given the drums by a friend from Randolph AFB Supply in the early 1970s. Some of the drums were used to make barbecue pits and animal feeders. The remainder of the drums were left in the field.

A presurvey was conducted on 20 Sep 90 by Capt Pat McMullen and Amn Chris Feagin in order to prepare the site for sampling.

B. Sampling Strategy

Sampling strategies were implemented in order to adequately and properly identify the contents of each drum of unknown material or waste. Each drum was either sampled individually or, when feasible, composited with another drum. Each drum was numbered; the drum color, waste label, and new material label (when available) were noted during the survey.

C. Analytical Strategy

The analyses prescribed for this project are designed to determine if the drums contain unused material, recycleable material, or waste product. All of the analyses were performed using SW-846 methods. The analyses will also determine if the waste products are hazardous or nonhazardous. The analytical methods used are presented in the table. The appropriate analysis for each drum was determined based upon visual inspection of the material through a disposable composite liquid waste sampler (COLIWASA). Gas Chromatograph/Mass Spectrometer (GC/MS) chemical identification (major

Note: This report was accomplished by the Air Force Occupational and Environmental Health Laboratory (AFOEHL), which is now the Armstrong Laboratory, Occupational and Environmental Health Directorate.

components) and hazardous waste characteristics analyses were performed on materials which appeared to be unused (i.e., drums that had never been opened and were not labeled, or drums which appeared to have been discarded due to physical damage). Energy recovery analyses were performed on materials which appeared to be uncontaminated waste oil. Toxicity Characteristic Leachate Procedure (TCLP) (SW 846 Method 1311) analyses were performed on all unknown wastes, unsegregated wastes (i.e., waste oil and antifreeze), and paint and thinner wastes. A volatile organics screen (SW-846 Method 8240) was performed on some solvents that appeared to be uncontaminated.

Table. SW-846 Method 8240 - Purgeable Halocarbons

CONSTITUENT
Acetone
Acrolein
Acrylonitrile
Benzene
Bromodichloromethane
Bromoform
Bromomethane
2-Butanone (MEK)
Carbon disulfide
Carbon tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane
2-Chloroethyl vinyl ether Chloroform
Chloromethane
Dibromomethane
1,4-Dichloro-2-butane
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
cis-1,3-Dichloropropene
trans-1,2-Dichloropropene
Ethanol
Ethylbenzene
Ethyl methacrylate
2-Hexanone
Iodomethane
Methylene chloride
2-Methyl-2-pentanone (MIBK)
Styrene
1,1,2,2-Tetrachloroethane
Tetrachloroethene (Perchloroethylene)
Toluene
1,1,1-Trichloroethane
1,1,2-Trichloroethane

Trichloroethene (Trichloroethylene)
Trichlorofluoromethane
1,2,3-Trichloropropane
Vinyl acetate
Vinyl chloride
Xylenes (total, all Isomers)

"Specification Oil" analysis for Energy Recovery 40 CFR Parts 266.40 and 761.20

ANALYSIS	REGULATORY LEVEL
SW 9020 - Total Organic Halogens	4000 ppm*
SW 1010 - Ignitabilty	100 degrees F minimum
SW 7060 - Arsenic	5 ppm maximum
SW 7131 - Cadmium	2 ppm maximum
SW 7191 - Chromium	10 ppm maximum
SW 7421 - Lead	100 ppm maximum
SW 8080 - PCBs	2 ppm

*Used oil containing more than 4000 ppm total halogens is presumed to be a hazardous waste unless it can be shown that the oil can be successfully mixed to a level below 1000 ppm total halogens.

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE

CONSTITUENT	REGULATORY LIMIT (mg/L)
Benzene	0.5
Carbon tetrachloride	0.5
Chlordane	0.03
Chlorobenzene	100.0
Chloroform	6.0
o-cresol	200.0
p-cresol	200.0
m-cresol	200.0
1,4-Dichlorobenzene	7.5
1,2-Dichloroethane	0.5
1,1-Dichloroethylene	0.7
2,4-Dinitrotoluene	0.13
Heptachlor	0.008
Hexachlorobenzene	0.13
Hexachloro-1,3-butadiene	0.5
Hexachloroethane	3.0
Methyl ethyl ketone	200.0
Nitrobenzene	2.0
Pentachlorophenol	100.0
Pyridine	5.0
Tetrachloroethylene	0.7
2,4,5-Trichlorophenol	400.0

CONSTITUENT	REGULATORY LIMIT (mg/L)
2,4,6-Trichlorophenol	2.0
Vinyl Chloride	0.2
Arsenic	5.0
Barium	100.0
Cadmium	1.0
Chromium	5.0
Lead	5.0
Mercury	0.2
Selenium	1.0
Silver	5.0
Endrin	0.02
Lindane	0.4
Methoxychlor	10.0
Toxaphene	0.5
2,4-D	10.0
2,4,5-TP (Silvex)	1.0

III. FIELD SAMPLING PROCEDURES

A. Sampling Techniques

Each sample was taken to provide a representative sample of the waste. Stratification of the waste due to age and/or varying physical properties was taken into account. All field sampling procedures met SW-846 criteria for representative sampling. A total of 57 drums were examined and sampled when feasible. The waste analysis plan is included as Appendix A.

Drummed liquids were sampled using a COLIWASA. A COLIWASA is a 3-foot cylindrical glass tube containing a plug rod that is used to close the end of the glass tube. A COLIWASA permits representative sampling of multiphase wastes of a wide range of viscosity, corrosivity, volatility, and solids content. A separate COLIWASA was used to collect the sample from each drum.

Sludge samples were obtained by scooping the sample container into the sludge when possible. Paint sludge samples were obtained by tearing the dried paint into pieces and putting the pieces into the sample container.

B. Quality Assurance/Quality Control Procedures

All samples were collected in Eagle Picher Level II Certified bottles. The bottles are cleaned by the vendor according to EPA Protocols in order to eliminate the container as a source of sample contamination. Each sample bottle was labeled with a unique sample number to avoid misidentification. A profile sheet (Appendix B) was also completed for each drum of waste as an additional means of avoiding misidentification.

All samples were taken to AFOEHL/SA where they were logged into the computer system and prepared for shipping to Clayton Environmental Consultants, Inc. for analysis.

IV. ANALYTICAL RESULTS

All analytical results are included in Appendix C. The results are organized numerically by drum number. The section also includes disposal options.

References

1. United States Environmental Protection Agency, "Identification and Listing of Hazardous Waste," 40 CFR Parts 260-266.

2. United States Environmental Protection Agency, "Polychlorinated Biphenyls," 40 CFR Part 761.

3. United States Environmental Protection Agency, "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846.

APPENDIX A

Cibolo Waste Analysis Plan

CIBOLO WASTE ANALYSIS PLAN

DRUM #	SAMPLE #	PHASES	WASTE COLOR	SUSPECT	ANALYSIS	COMPOSITE
1	GT901750	NO	CLEAR YELLOW	ALODINE	TCLP	NO
2	GT901764	SLUDGE	CLEAR/RUST	METALS/WATER	TCLP METALS	DRUM 47
3	GT901752	EMPTY				
4	GT901753	SLUDGE	BLACK	DRIED PAINT	TCLP METALS	NO
5	GT901771	SLUDGE & LIQ	BLACK/CLEAR	DRIED PAINT	MAJ COMP TCLP METALS	NO
6	GT901780	YES	CLEAR/BROWN	WATER/DIRT	MAJ COMP TCLP METALS	NO
7	GT901756	EMPTY				
8	GT901757	EMPTY				
9	GT901777	YES	CLEAR/RUST	WATER/DIRT	TCLP METALS	DRUM 19
10	GT901759	EMPTY				
11	GT901760	YES	MIXED	PAINT&THINNER	MAJ COMP	NO
12	GT901761	YES	CLEAR/RUST	WATER/SOLVENT	MAJ COMP TCLP	NO
13	GT901762	EMPTY				
14	GT901763	NO	BLACK	OIL	ENG REC	NO
15	GT901764	EMPTY				
16	GT901765	NO	CLEAR	TOLUENE	8240	NO
17	GT901766	SLUDGE		PAINT	TCLP METALS	DRUM 22
18	GT901787	YES	CLEAR/RUST	WATER/SLUDGE	MAJ COMP TCLP METALS	NO
19	W/DRUM 9	SLUDGE	BLACK		TCLP METALS	DRUM 9
20	GT901769	EMPTY				
21	GT901784	YES	BLACK/CLEAR		MAJ COMP TCLP METALS	NO
22	COMP W/17	SLUDGE		PAINT		DRUM 17
23	GT901772	12"SLUDGE			MAJ COMP TCLP METALS	NO
24	GT901773	EMPTY				
25	GT901788	YES	CLEAR/BLACK	THINNER/PAINT	MAJ COMP TCLP METALS	DRUM 55
26	GT901775	YES	BLACK/CLEAR	OIL AND WATER	ENG REC	NO
27	GT901776	YES	BLACK/CLEAR	OIL AND WATER	ENG REC	NO
28	NO DRUM 28					
29	GT901789	YES	RUST/CLEAR	RUSTY WATER	MAJ COMP TCLP METALS	NO
30	GT901779	YES	BLACK/CLEAR	OIL AND WATER	ENG REC	NO

31	GT901780	EMPTY				
32	GT901781	YES	BLACK/CLEAR	OIL AND WATER	ENG REC	DRUMS 35, 38 39, 40
33	GT901782	NO 6"MATL	BLACK	OIL	ENG REC	DRUM 41
34	GT901783	NO	BLACK	TAR	NONE	
35	W/DRUM 32					
36	GT901785	YES	RED/CLEAR	H.F. AND WATER	ENG REC	NO
37	GT901786	NO 1"MATL			TCLP METALS	NO
38	W/DRUM 32	YES	BLACK/CLEAR	OIL AND WATER	ENG REC	DRUM 32
39	W/DRUM 32	YES	BLACK/CLEAR	OIL AND WATER	ENG REC	DRUM 32
40	W/DRUM 32	YES	BLACK/CLEAR	OIL AND WATER	ENG REC	DRUM 32
41	W/DRUM 33	NO	BLACK	OIL	ENG REC	DRUM 33
42	GT901791	NO SOLID	BLACK	TAR	NONE	NO
43	GT901792	YES	BLACK/CLEAR	OIL AND WATER	ENG REC	NO
44	GT901790	NO	BLACK/CLEAR	DIRT/WATER	MAJ COMP TCLP	NO
45	NO DRUM					
46	GT901795	NO	BLACK	TAR	NONE	NO
47	W/DRUM 2	NO	SOLID	PAINT SLUDGE	NONE	NO
48	NO DRUM					
49	GT901798	YES	BLACK/CLEAR	OIL AND WATER	ENG REC	NO
50	GT901791	NO	RUST	RUSTY WATER	MAJ COMP TCLP METALS	NO
51	GT901800	EMPTY				
52	GT901794	NO	RUST	RUSTY WATER	MAJ COMP TCLP METALS	NO
53	GT901802	NO		SOLVENT	8240	NO
54	GT901803	EMPTY				
55	W/DRUM 25	YES	CLEAR/BLACK	THINNER/PAINT		DRUM 25
56	GT901795	NO	RUST	THINNER/PAINT	MAJ COMP TCLP METALS	NO
57	GT901806	NO	BLACK	TAR	NONE	NO
58	GT901807	NO	RUST	RUST & SOLVENT	MAJ COMP	NO
59	GT901808	EMPTY				
60	GT901809	EMPTY				

(This page left blank)

APPENDIX B

Waste Profile Sheet

(This page left blank)

DRUM NUMBER _____ SAMPLE NUMBER _____

COLLECTION DATE _____ TIME _____

SAMPLER _____

ORIGINAL LABEL _____ WASTE LABEL _____

DRUM COLOR _____ WASTE COLOR _____

PHASES: YES/ NO

CONTENTS: WASTE OR NEW PRODUCT

WASTE SUSPECTED TO BE _____

SAMPLE TAKEN: YES / NO

COMPOSITED WITH: DRUM # _____

OVERPACK OR NEW DRUM NECESSARY: YES / NO

REQUESTED ANALYSIS: _____

COMMENTS:

_____

_____

DRUM NUMBER _____ SAMPLE NUMBER _____

COLLECTION DATE _____ TIME _____

SAMPLER _____

ORIGINAL LABEL _____ WASTE LABEL _____

DRUM COLOR _____ WASTE COLOR _____

PHASES: YES/ NO

CONTENTS: WASTE OR NEW PRODUCT

WASTE SUSPECTED TO BE _____

SAMPLE TAKEN: YES / NO

COMPOSITED WITH: DRUM # _____

OVERPACK OR NEW DRUM NECESSARY: YES / NO

REQUESTED ANALYSIS: _____

COMMENTS:

(This page left blank)

APPENDIX C

Analytical Results

(This page left blank)

DRUM 1

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Benzene	<0.08	
Carbon tetrachloride	<0.08	
Chlordane	<0.01	
Chlorobenzene	<0.08	
Chloroform	<0.08	
o-cresol	NP	
p-cresol	NP	
m-cresol	NP	
1,4-Dichlorobenzene	<0.2	
1,2-Dichloroethane	<0.08	
1,1-Dichloroethylene	<0.08	
2,4-Dinitrotoluene	<0.05	
Heptachlor	<0.001	
Hexachlorobenzene	<0.05	
Hexachloro-1,3-butadiene	<0.05	
Hexachloroethane	<0.05	
Methyl ethyl ketone	120	
Nitrobenzene	<0.05	
Pentachlorophenol	<5.0	
Pyridine	<0.05	
Tetrachloroethylene	<0.08	
2,4,5-Trichlorophenol	<0.5	
2,4,6-Trichlorophenol	<0.5	
Vinyl Chloride	<0.2	
Arsenic	0.1	
Barium	0.5	
Cadmium	0.11	
Chromium	120	D007
Lead	260	D008
Mercury	<0.01	
Selenium	0.07	
Silver	<0.2	
Endrin	<0.01	
Lindane	<0.001	
Methoxychlor	<0.01	
Toxaphene	<0.02	
2,4-D	<0.1	
2,4,5-TP (Silvex)	<0.02	

Recommended Disposal: Dispose as D007 and D008 haz waste.

DRUM 2

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	4.53	
Cadmium	0.72	
Chromium	15.5	D007
Lead	40.7	D008
Mercury	<0.01	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Dispose as D007 and D008 haz waste.

DRUM 3

EMPTY

Recommended Disposal: Municipal Waste

DRUM 4

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	4.83	
Cadmium	0.25	
Chromium	14.8	D007
Lead	<0.1	
Mercury	0.11	
Selenium	<0.1	
Silver	<0.1	

Recommended Disposal: Dispose as D007 haz waste.

DRUM 5

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components	70% water 30% solids	
Hydrogen Ion (pH)	7.0	
Ignitability	>140 degrees F	

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	0.11	
Barium	0.38	
Cadmium	1.24	D006
Chromium	53.8	D007
Lead	<0.1	
Mercury	0.11	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Dispose as D006 and D007 haz waste.

DRUM 6

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components	99% water 1% solids	

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	<0.1	
Cadmium	<0.1	
Chromium	39.9	D007
Lead	<0.1	
Mercury	0.01	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Dispose as D007 haz waste.

DRUM 7

EMPTY

Recommended Disposal: Municipal Waste

DRUM 8

EMPTY

Recommended Disposal: Municipal Waste

DRUM 9

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	0.123	
Cadmium	<0.1	
Chromium	<0.1	
Lead	<0.3	
Mercury	<0.01	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Dispose as municipal waste.

DRUM 10

EMPTY

Recommended Disposal: Municipal Waste

DRUM 11

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components: Waste is 100% organic.		
Methyl Ethyl Ketone	26%	F005
Butoxy Ethanol	22%	
Acetone	19%	F003
Methyl Pentanone	17%	F003
Methyl Propanol	11%	
Methylene Chloride	4%	F002

Recommended Disposal: Waste solvent containing the above constituents. Due to the uncertainty of the original material's composition or its subsequent use, the above waste codes may or may not be completely accurate.

DRUM 12

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components: Waste is 100% organic.		
Phenol	64%	U188
Butoxy Ethanol	25%	
Methyl Propanol	3%	
Possible Alcohol	3%	
Methyl Pentanone	2%	F003
Butanol	1%	F003
Ethoxy Ethanol	1%	U359
Cyclohexanone	1%	
Cresol (total)	<10 mg/L	

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE

CONSTITUENT	RESULTS	EXCEEDS LIMIT
Benzene	<0.03	
Carbon tetrachloride	<0.03	
Chlordane	<0.01	
Chlorobenzene	<0.03	
Chloroform	<0.03	
1,4-Dichlorobenzene	<2.0	
1,2-Dichloroethane	<0.03	
1,1-Dichloroethylene	<0.03	
2,4-Dinitrotoluene	<1.0	
Heptachlor	<0.001	
Hexachlorobenzene	<1.0	
Hexachloro-1,3-butadiene	<2.0	
Hexachloroethane	<3.0	
Methyl ethyl ketone	160	
Nitrobenzene	<2.0	
Pentachlorophenol	<5.0	
Pyridine	<2.0	
Tetrachloroethylene	<0.03	
2,4,5-Trichlorophenol	<10.0	
2,4,6-Trichlorophenol	<9.0	
Vinyl Chloride	<0.05	
Arsenic	1.6	
Barium	1.6	
Cadmium	2.7	D006
Chromium	18	D007
Lead	3.0	
Mercury	<0.02	
Selenium	1.9	D010
Silver	<0.05	
Endrin	<0.01	
Lindane	<0.001	
Methoxychlor	<0.01	
Toxaphene	<0.02	
2,4-D	<0.2	
2,4,5-TP (Silvex)	<0.04	

Recommended Disposal: Dispose of as the above wastes. Due to the uncertainty of the original material's composition or its subsequent use, the above waste codes may or may not be completely accurate.

DRUM 13

EMPTY

Recommended Disposal: Municipal Waste

DRUM 14

"Specification Oil" analysis for Energy Recovery
40 CFR Part 266.40

ANALYSIS	RESULTS	EXCEEDS LIMIT
SW 9020 - Total Organic Halogens	300 ppm	
SW 1010 - Ignitability	>140 degrees F	
SW 7060 - Arsenic	<1.0 ppm	
SW 7131 - Cadmium	0.2 ppm	
SW 7191 - Chromium	<1.0 ppm	
SW 7421 - Lead	130 ppm	Yes

EPA Method 600/4-81-045 - PCB

PCB Screen (total)	none Detected	mg/kg
Aroclor 1016	<1.0	mg/kg
Aroclor 1221	<1.0	mg/kg
Aroclor 1232	<1.0	mg/kg
Aroclor 1242	<1.0	mg/kg
Aroclor 1248	<1.0	mg/kg
Aroclor 1254	<1.0	mg/kg
Aroclor 1260	<1.0	mg/kg

< - indicates none detected and the detection limits

Recommended Disposal: Blend and recycle or dispose as haz waste

---

DRUM 15

EMPTY

Recommended Disposal: Municipal Waste

DRUM 16

SW-846 Method 8240 - Purgeable Halocarbons

CONSTITUENT	RESULTS	EXCEEDS LIMIT
Ethyl Benzene	5 mg/L	F003
Methyl Ethyl Ketone	280 mg/L	F005 & TCLP
Methylene chloride	63 mg/L	F001
4-Methyl-2-pentanone (MIBK)	210 mg/L	F003
Toluene	180 mg/L	F005
Xylenes (total, all Isomers)	23 mg/L	F003

All other EPA Method 8240 analytes are none detected.

Recommended Disposal: Waste solvent containing the above constituents. Due to the uncertainty of the original material's composition or its subsequent use, the above waste codes may or may not be completely accurate.

DRUM 17

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	3.3	
Cadmium	0.08	
Chromium	0.8	
Lead	2.8	
Mercury	<0.01	
Selenium	<0.1	
Silver	<0.1	

Recommended Disposal: Dispose as municipal waste.

DRUM 18

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components	50% water 50% paint solids	
Hydrogen Ion (pH)	7.0	

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	<0.1	
Cadmium	<0.1	
Chromium	16.6	D007
Lead	<0.1	
Mercury	<0.01	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Dispose of as D007 haz waste.

DRUM 19

Analysis: Composited with Drum 9.

Recommended Disposal: Dispose as municipal waste.

DRUM 20

EMPTY

Recommended Disposal: Municipal Waste

DRUM 21

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components	95% water 5% solids	
Hydrogen Ion (pH)	6.5	

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	<0.1	
Cadmium	<0.1	
Chromium	<0.1	
Lead	<0.1	
Mercury	<0.01	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Discharge water to the sanitary sewer and dispose of the drum as municipal waste.

DRUM 22

Analysis: Composited with Drum 17

Recommended Disposal: Municipal Waste

DRUM 23

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components: Waste is 100% organic.		
Toluene	34%	F005
C9-C15 Aliphatic Hydrocarbons	31%	
Xylene	17%	F003
C9-C11 Alkylbenzenes	5%	
Bis (2-ethylhexyl) Phthalate	3%	
Ethylbenzene	3%	
Phenol	2%	
Unknown	2%	
MIBK	1%	F003
Alkykl Cyclohexanes	1%	
C16-C17 Carboxylic Acids	1%	

Note: This sample is a solid sample. The solid was dissolved before the major components analysis was performed.

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	0.4	
Cadmium	<0.05	
Chromium	<0.1	
Lead	1.7	
Mercury	<0.01	
Selenium	<0.1	
Silver	<0.1	

Recommended Disposal: Dispose as Haz Waste containing the above constituents. Due to the uncertainty of the original material's composition or its subsequent use, the above waste codes may or may not be completely accurate.

DRUM 24

EMPTY

Recommended Disposal: Municipal Waste

DRUM 25

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components	60% toluene and MEK 40% paint solids	F005

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	0.60	
Cadmium	<0.1	
Chromium	19.3	D007
Lead	<0.1	
Mercury	<0.01	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Dispose of as F005 and D007 haz waste.

DRUM 26

"Specification Oil" analysis for Energy Recovery 40 CFR Part 266.40

ANALYSIS	RESULTS	EXCEEDS LIMIT
SW 9020 - Total Organic Halogens	<200 ppm	
SW 1010 - Ignitability	127 degrees F	
SW 7060 - Arsenic	<1.0 ppm	
SW 7131 - Cadmium	0.02 ppm	
SW 7191 - Chromium	<1.0 ppm	
SW 7421 - Lead	310 ppm	Yes

EPA Method 600/4-81-045

PCB Screen (total)	none Detected	mg/kg
Aroclor 1016	<1.0	mg/kg
Aroclor 1221	<1.0	mg/kg
Aroclor 1232	<1.0	mg/kg
Aroclor 1242	<1.0	mg/kg
Aroclor 1248	<1.0	mg/kg
Aroclor 1254	<1.0	mg/kg
Aroclor 1260	<1.0	mg/kg

< - indicates none detected and the detection limits

Recommended Disposal: Blend and recycle or dispose as haz waste

27

"Specification Oil" analysis for Energy Recovery
40 CFR Part 266.40

ANALYSIS	RESULTS	EXCEEDS LIMIT
SW 9020 - Total Organic Halogens	<200 ppm	
SW 1010 - Ignitability	>140 degrees F	
SW 7060 - Arsenic	<1.0 ppm	
SW 7131 - Cadmium	1.1 ppm	
SW 7191 - Chromium	<1.0 ppm	
SW 7421 - Lead	120 ppm	Yes

EPA Method 600/4-81-045 - PCB

PCB Screen (total)	None Detected	mg/kg
Aroclor 1016	<1.0	mg/kg
Aroclor 1221	<1.0	mg/kg
Aroclor 1232	<1.0	mg/kg
Aroclor 1242	<1.0	mg/kg
Aroclor 1248	<1.0	mg/kg
Aroclor 1254	<1.0	mg/kg
Aroclor 1260	<1.0	mg/kg

< - indicates None detected and the detection limits

Recommended Disposal: Blend and recycle or dispose as haz waste.

DRUM 28

There is no Drum 28

DRUM 29

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components	96% water 4% solids	
Hydrogen Ion (pH)	7.0	

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	<0.1	
Cadmium	<0.1	
Chromium	<0.1	
Lead	<0.1	
Mercury	<0.01	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Discharge the water to the sanitary sewer and dispose the drum as municipal waste.

DRUM 30

"Specification Oil" analysis for Energy Recovery 40 CFR Part 266.40

ANALYSIS	RESULTS	EXCEEDS LIMIT
SW 9020 - Total Organic Halogens	<200 ppm	
SW 1010 - Ignitability	>140 degrees F	
SW 7060 - Arsenic	<1.0 ppm	
SW 7131 - Cadmium	1.4 ppm	
SW 7191 - Chromium	6.8 ppm	
SW 7421 - Lead	1300 ppm	Yes

EPA Method 600/4-81-045 - PCB

PCB Screen (total)	None Detected	mg/kg
Aroclor 1016	<1.0	mg/kg
Aroclor 1221	<1.0	mg/kg
Aroclor 1232	<1.0	mg/kg
Aroclor 1242	<1.0	mg/kg
Aroclor 1248	<1.0	mg/kg
Aroclor 1254	<1.0	mg/kg
Aroclor 1260	<1.0	mg/kg

< - indicates none detected and the detection limits

Recommended Disposal: Blend and recycle or dispose as haz waste.

DRUM 31

EMPTY

Recommended Disposal: Municipal Waste

DRUM 32

"Specification Oil" analysis for Energy Recovery
40 CFR Part 266.40

ANALYSIS	RESULTS	EXCEEDS LIMIT
SW 9020 - Total Organic Halogens	<200 ppm	
SW 1010 - Ignitability	>140 degrees F	
SW 7060 - Arsenic	<1.0 ppm	
SW 7131 - Cadmium	0.5 ppm	
SW 7191 - Chromium	<1.0 ppm	
SW 7421 - Lead	470 ppm	Yes

EPA Method 600/4-81-045 - PCB

PCB Screen (total)	None Detected	mg/kg
Aroclor 1016	<1.0	mg/kg
Aroclor 1221	<1.0	mg/kg
Aroclor 1232	<1.0	mg/kg
Aroclor 1242	<1.0	mg/kg
Aroclor 1248	<1.0	mg/kg
Aroclor 1254	<1.0	mg/kg
Aroclor 1260	<1.0	mg/kg

< - indicates none detected and the detection limits

Recommended Disposal: Blend and recycle or dispose as haz waste

---

DRUM 33

"Specification Oil" analysis for Energy Recovery
40 CFR Part 266.40

ANALYSIS	RESULTS	EXCEEDS LIMIT
SW 9020 - Total Organic Halogens	<200 ppm	
SW 1010 - Ignitability	100 degrees F	
SW 7060 - Arsenic	<1.0 ppm	
SW 7131 - Cadmium	<0.1 ppm	
SW 7191 - Chromium	<1.0 ppm	
SW 7421 - Lead	120 ppm	Yes

EPA Method 600/4-81-045 - PCB

PCB Screen (total)	None Detected	mg/kg
Aroclor 1016	<1.0	mg/kg
Aroclor 1221	<1.0	mg/kg
Aroclor 1232	<1.0	mg/kg
Aroclor 1242	<1.0	mg/kg
Aroclor 1248	<1.0	mg/kg
Aroclor 1254	<1.0	mg/kg
Aroclor 1260	<1.0	mg/kg

< - indicates none detected and the detection limits

Recommended Disposal: Blend and recycle or dispose as haz waste.

DRUM 34

Drum contains solidified tar.

Recommended Disposal: Dispose as tar.

DRUM 35

ANALYSIS: Composited with Drum 32

Recommended Disposal: Blend and recycle or dispose as haz waste.

DRUM 36

"Specification Oil" analysis for Energy Recovery
40 CFR Part 266.40

ANALYSIS	RESULTS	EXCEEDS LIMIT
SW 9020 - Total Organic Halogens	<200 ppm	
SW 1010 - Ignitability	>140 degrees F	
SW 7060 - Arsenic	<1.0 ppm	
SW 7131 - Cadmium	<0.1 ppm	
SW 7191 - Chromium	<1.0 ppm	
SW 7421 - Lead	<1.0 ppm	

EPA Method 600/4-81-045 - PCB

PCB Screen (total)	none Detected	mg/kg
Aroclor 1016	<1.0	mg/kg
Aroclor 1221	<1.0	mg/kg
Aroclor 1232	<1.0	mg/kg
Aroclor 1242	<1.0	mg/kg
Aroclor 1248	<1.0	mg/kg
Aroclor 1254	<1.0	mg/kg
Aroclor 1260	<1.0	mg/kg

< - indicates none detected and the detection limits

Recommended Disposal: Recycle

DRUM 37

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	0.5	
Cadmium	370	Yes
Chromium	0.99	
Lead	<0.1	
Mercury	<0.01	
Selenium	<0.1	
Silver	<0.1	

Recommended Disposal: Dispose as D007 Haz Waste.

DRUM 38

ANALYSIS: Composited with Drum 32

Recommended Disposal: Blend and recycle or dispose as haz waste.

DRUM 39

ANALYSIS: Composited with Drum 32

Recommended Disposal: Blend and recycle or dispose as haz waste.

DRUM 40

ANALYSIS: Composited with Drum 32

Recommended Disposal: Blend and recycle or dispose as haz waste.

DRUM 41

ANALYSIS: Composited with Drum 33

Recommended Disposal: Blend and recycle or dispose as haz waste.

DRUM 42

Drum contains solidified tar.

Recommended Disposal: Dispose as tar.

DRUM 43

"Specification Oil" analysis for Energy Recovery
40 CFR Part 266.40

ANALYSIS	RESULTS	EXCEEDS LIMIT
SW 9020 - Total Organic Halogens	<200 ppm	
SW 1010 - Ignitability	>140 degrees F	
SW 7060 - Arsenic	<1.0 ppm	
SW 7131 - Cadmium	0.6 ppm	
SW 7191 - Chromium	<1.0 ppm	
SW 7421 - Lead	200 ppm	Yes

EPA Method 600/4-81-045 - PCB

PCB Screen (total)	none Detected	mg/kg
Aroclor 1016	<1.0	mg/kg
Aroclor 1221	<1.0	mg/kg
Aroclor 1232	<1.0	mg/kg
Aroclor 1242	<1.0	mg/kg
Aroclor 1248	<1.0	mg/kg
Aroclor 1254	<1.0	mg/kg
Aroclor 1260	<1.0	mg/kg

< - indicates none detected and the detection limits

Recommended Disposal: Blend and recycle or dispose as haz waste

DRUM 44

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components	95% water 5% solids	
Hydrogen Ion (pH)	7.0	

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	22.0	
Cadmium	<0.1	
Chromium	<0.1	
Lead	<0.1	
Mercury	<0.01	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Discharge the water to the sanitary sewer and dispose the drum as municipal waste.

DRUM 45

There is no Drum 45

DRUM 46

Drum contains solidified tar.

Recommended Disposal: Dispose as tar.

DRUM 47

ANALYSIS: Composited with Drum 2

Recommended Disposal: Dispose as D007 and D008 haz waste.

DRUM 48

There is no Drum 48

DRUM 49

"Specification Oil" analysis for Energy Recovery
40 CFR Part 266.40

ANALYSIS	RESULTS	EXCEEDS LIMIT
SW 9020 - Total Organic Halogens	300 ppm	
SW 1010 - Ignitability	>140 degrees F	
SW 7060 - Arsenic	<1.0 ppm	
SW 7131 - Cadmium	0.2 ppm	
SW 7191 - Chromium	<1.0 ppm	
SW 7421 - Lead	120 ppm	yes

EPA Method 600/4-81-045 - PCB

PCB Screen (total)	none Detected	mg/kg
Aroclor 1016	<1.0	mg/kg
Aroclor 1221	<1.0	mg/kg
Aroclor 1232	<1.0	mg/kg
Aroclor 1242	<1.0	mg/kg
Aroclor 1248	<1.0	mg/kg
Aroclor 1254	<1.0	mg/kg
Aroclor 1260	<1.0	mg/kg

< - indicates none detected and the detection limits

Recommended Disposal: Blend and recycle or dispose as haz waste.

DRUM 50

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components	95% water 5% solids	
Hydrogen Ion (pH)	7.0	

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	<0.1	
Cadmium	<0.1	
Chromium	<0.1	
Lead	<0.1	
Mercury	<0.01	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Discharge the water to the sanitary sewer and dispose the drum as municipal waste.

DRUM 51

EMPTY

Recommended Disposal: Municipal Waste.

DRUM 52

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components	97% water 3% solids	
Hydrogen Ion (pH)	7.0	

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	<0.1	
Barium	<0.1	
Cadmium	<0.1	
Chromium	<0.1	
Lead	<0.1	
Mercury	0.02	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Discharge the water to the sanitary sewer and dispose the drum as municipal waste.

DRUM 53

SW-846 Method 8240 - Purgeable Halocarbons

CONSTITUENT	RESULTS	EXCEEDS LIMIT
Methy Ethyl Ketone	30 mg/L	F005
Methylene chloride	0.9 mg/L	F001
Toluene	1.0 mg/L	F005

Recommended Disposal: Waste solvent containing the above constituents. Due to the uncertainty of the original material's composition or its subsequent use, the above waste codes may or may not be completely accurate.

DRUM 54

EMPTY

Recommended Disposal: Municipal Waste

DRUM 55

ANALYSIS: Composited with Drum 25

Recommended Disposal: Dispose of as F005 and D007 haz waste.

DRUM 56

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components	91% toluene 9% paint solids	

SW 846 METHOD 1311 - TOXICITY CHARACTERISTIC LEACHATE PROCEDURE (METALS ONLY)

CONSTITUENT	RESULTS (mg/L)	EXCEEDS LIMIT
Arsenic	0.11	
Barium	2.61	
Cadmium	1.39	D006
Chromium	35.1	D007
Lead	22.6	D008
Mercury	0.01	
Selenium	<0.01	
Silver	<0.1	

Recommended Disposal: Dispose as D006, D007, and D008 haz waste.

DRUM 57

Drum contains solified tar.

Recommended Disposal: Dispose as waste tar.

DRUM 58

ANALYSIS	RESULTS	EXCEEDS LIMIT
Major Components: Waste is 100% organic.		
Phenol	65%	U188
Butoxy Ethanol	24%	
Ethoxy Ethanol	4%	U359
Methyl Propanol	2%	
Methyl Isobutyl Ketone	1%	F003
Butanol	1%	F003
Ethoxy Propanol	1%	
Possible Alcohol	1%	

Recommended Disposal: Dispose of as the above wastes. Due to the uncertainty of the original material's composition or its subsequent use, the above waste codes may or may not be completely accurate.

DRUM 59

EMPTY

Recommended Disposal: Municipal Waste

DRUM 60

EMPTY

Recommended Disposal: Municipal Waste

(This page left blank)

Distribution List

	Copies
HQ USAF/SGPA Bolling AFB DC 20332-6188	1
HQ ATC/SGPB Randolph AFB TX 78150-5001	2
HQ ATC/DEEV Randolph AFB TX 78150-5001	1
Defense Technical Information Center (DTIC) Cameron Station Alexandria VA 22319	2
HQ USAF/LEEV Bolling AFB DC 20330-5000	1
USAF Clinic Randolph/SGPB Randolph AFB TX 78150-5000	2
12 CES/DEV Randolph AFB TX 78150	5

* U. S. GOVERNMENT PRINTING OFFICE: 1991 -561 052 40033